

# UNITED STATES PATENT OFFICE.

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## PROCESS OF MAKING SCREENS FOR PROJECTION.

1,266,778.

Specification of Letters Patent.

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No Drawing.

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*To all whom it may concern:*

Be it known that I, THOMAS A. EDISON, a citizen of the United States, and a resident of Llewellyn Park, West Orange, Essex county, New Jersey, have invented certain new and useful Improvements in Processes of Making Screens for Projection, of which the following is a description.

My invention relates to screens having a partially reflecting surface and particularly adapted for use in the projection of motion and other pictures, and to a simple, efficient and cheap process for making said screens.

In my improved process I make use of ordinary oilcloth or its equivalent, and preferably I employ smooth oilcloth of white or other light color. Ordinary oilcloth consists of a backing or base of flexible fabric having adhering thereto a thin coating which contains pigments or filling materials or a mixture of the same, and oxidized or dried linseed oil or other drying oil, such as tong or chinese wood oil, or a mixture of the same. In carrying out my improved process, the oilcloth is heated in any convenient manner, as for example, by heating the portion to be treated upon a hot plate or by passing it over a heated roller, the uncoated side of the oilcloth being in contact with the heated plate or roller. The plate or roller may be heated in any suitable manner, as for example, electrically or by using steam. I have found that a suitable temperature is afforded by steam at about 100 pounds pressure. The oilcloth coating becomes softened and somewhat sticky when heated, and I then apply to the surface of the softened and sticky coating powdered material suitable for producing the desired partially reflecting surface for the screen. The powdered material preferably contains powdered aluminum and may contain other substances to produce surfaces of a color different from that produced by aluminum alone and better adapted for projection purposes. I have obtained desirable results by the use of a powder consisting of five parts of aluminum bronze mixed with three parts of amethyst violet bronze powder. The powdered material may be applied with a brush, or may be sprinkled upon the sticky surface and then rubbed in with a brush. When so rubbed the powdered material ad-

heres tenaciously to the oilcloth coating in a thin smooth layer or coating having a reflecting surface. A brush having moderately stiff, fine bristles close together is preferably employed. In order to make the powder adhere to the oilcloth surface, some, but not a great amount of rubbing is necessary. Any excess of powdered material not adhering to the oilcloth may be brushed off with a soft brush or otherwise removed. The oilcloth thus treated is then permitted to cool and a drying mixture is sprayed over its surface from an atomizer, such as an air brush, or in any other suitable manner. A suitable drying mixture for this purpose consists of linseed oil, preferably boiled, turpentine, and white Japan drier in the following proportions:—

10 parts of linseed oil.

5 parts of turpentine.

5 parts of white Japan drier.

After the surface has been sprayed, the product is permitted to dry and is then ready for use. The oilcloth may be cut into sizes suitable for screens before treatment, or rolls or large pieces of oilcloth may be treated and the product cut into suitable sizes for screens at the end of the process.

The application of the final coating of drying mixture serves to keep the powdered material from rubbing off or from being finger-marked, prevents the metallic coating or bronze from tarnishing, and produces a screen having a somewhat dull surface which is more desirable for projection purposes than a screen having an excessively bright surface.

I may also corrugate slightly the finished surface of the screen in order to increase the angle within which an image projected on the screen may be viewed as a clear and distinct picture. The corrugation may be performed by producing slight grooves or depressions in the finished surface by any suitable means, as for example, a marking tool, such as a roller having circumferential substantially V-shaped ribs, the edges of which produce the depressions in the screen surface. The depressions are preferably formed in straight parallel lines close together, and when the screen is employed for projection purposes the depression lines are preferably vertically disposed so as to increase the

horizontal angle within which clear and distinct projected pictures may be observed.

My improved screen is flexible and may therefore be rolled and unrolled, and the  
5 metallic coating is very adherent and is not damaged by rolling or unrolling or by rough handling. The clearness and distinctness of projected pictures is much enhanced by the use of my improved screen, due to the  
10 greater amount of light reflected from a screen of this character than from a screen having a more light-absorbent surface. My improved process is simple, cheap and easily carried out, and a surface of the character  
15 desired is obtained with a very small amount of powdered material per unit of area.

Having now described my invention, what I claim as new therein and desire to protect by Letters Patent is as follows:—

20 1. The process of making screens for projection purposes, which consists in heating oilcloth until the oilcloth surface becomes soft and somewhat sticky, applying powdered material containing a metal to the  
25 softened and sticky surface, and rubbing the said material into the surface, substantially as described.

2. The process of making screens for projection purposes, which consists in heating  
30 oilcloth until the oilcloth coating becomes soft and somewhat sticky, applying powdered material containing a metal thereto, rubbing the powdered material into the surface, permitting the product to cool, ap-  
35 plying a thin coating of drying oil to the metallic surface, and permitting the final coating to dry, substantially as described.

3. The process of making screens for projection purposes, which consists in heating  
40 oilcloth until the oilcloth coating becomes soft and somewhat sticky, applying powdered material containing a metal thereto, rubbing the powdered material into the surface, permitting the product to cool, ap-  
45 plying a thin coating of drying oil to the metallic surface, permitting the final coating to dry, and corrugating the surface, substantially as described.

4. The process of making screens for pro-  
50 jection purposes, which consists in applying heat to a fabric having adhering thereto a coating capable of being rendered soft and somewhat sticky by heating, applying powdered material containing a metal to the  
55 softened and sticky surface of the heated coating, and rubbing the said material into the surface, substantially as described.

5. The process of making screens for pro-  
60 jection purposes, which consists in heating a fabric having adhering thereto a coating

capable of being rendered soft and somewhat sticky by heating, applying powdered material containing a metal to the surface of the heated coating, rubbing the powdered  
65 material into the surface, permitting the product to cool, applying a thin coating of drying oil to the metallic surface, and permitting the final coating to dry, substantially as described.

6. The process of making screens for pro-  
70 jection purposes, which consists in heating a fabric having adhering thereto a coating capable of being rendered soft and somewhat sticky by heating, applying powdered ma-  
75 terial containing a metal to the surface of the heated coating, rubbing the powdered material into the surface, permitting the product to cool, applying a thin coating of drying oil to the metallic surface, permitting  
80 the final coating to dry, and corrugating the surface, substantially as described.

7. The process of making screens for pro-  
jection purposes, which consist in applying  
85 heat to a fabric having adhering thereto a coating capable of being rendered soft and somewhat sticky when heated, applying powdered material containing a metal to the soft and sticky surface of the heated coat-  
90 ing, rubbing the powdered material into the surface, permitting the product to cool, ap- plying a thin coating of drying oil contain-  
95 ing linseed oil to the metallic surface, and permitting the final coating to dry, sub-  
stantially as described.

8. The process of making screens for  
95 projection purposes, which consists in treating oilcloth to render the oilcloth coating soft and somewhat sticky, applying powdered material containing a metal  
100 thereto, applying a thin coating of drying oil to the metallic surface, and permitting the final coating to dry, substantially as de-  
scribed.

9. The process of making screens for pro-  
105 jection purposes, which consists in heating a fabric having adhering thereto a coating capable of being rendered soft and somewhat sticky by heat, applying powdered material containing a metal to the surface  
110 of the heated coating, applying a thin coating of drying oil to the metallic surface, and permitting the final coating to dry, sub-  
stantially as described.

This specification signed and witnessed  
this 19th day of June, 1912

THOS. A. EDISON.

Witnesses:

HENRY LANAHAN,  
ANNA R. KLEIM.